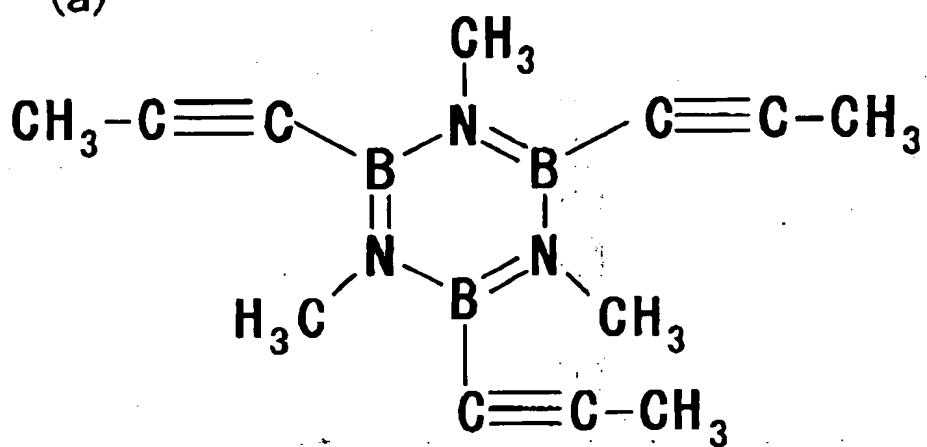


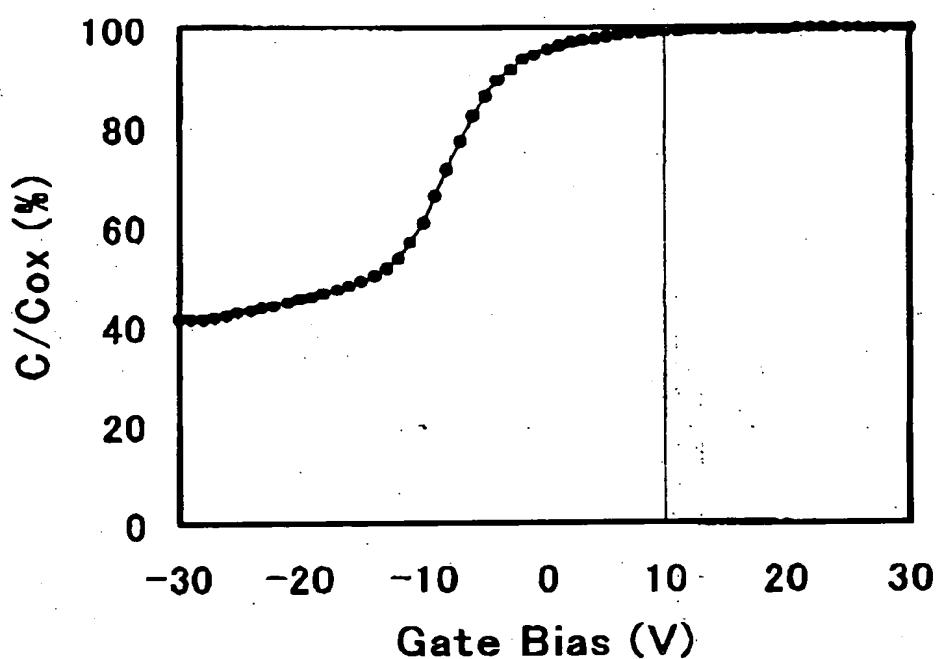
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FIG. 1

(a)



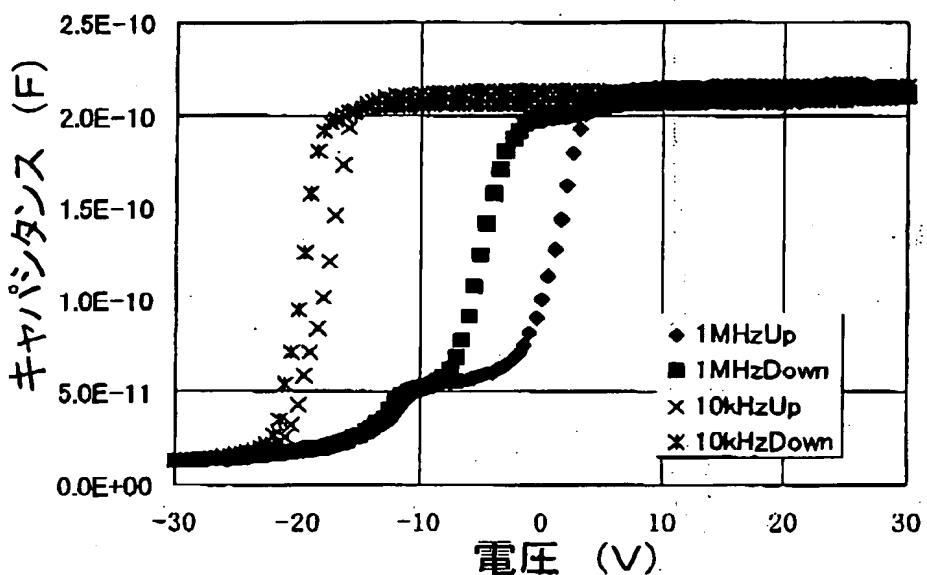
(b)



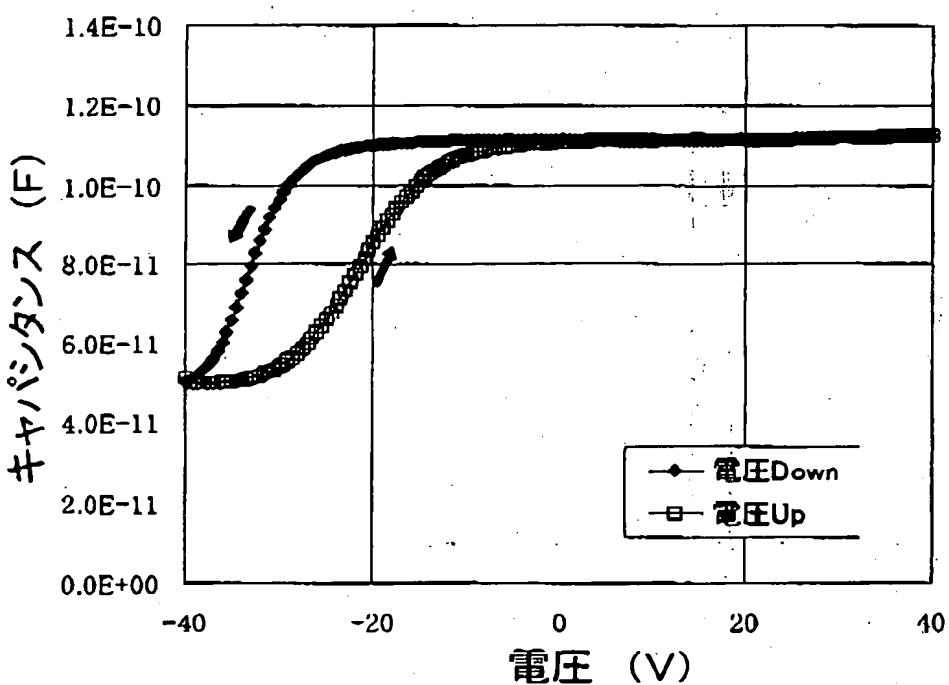
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FIG. 2

(a)

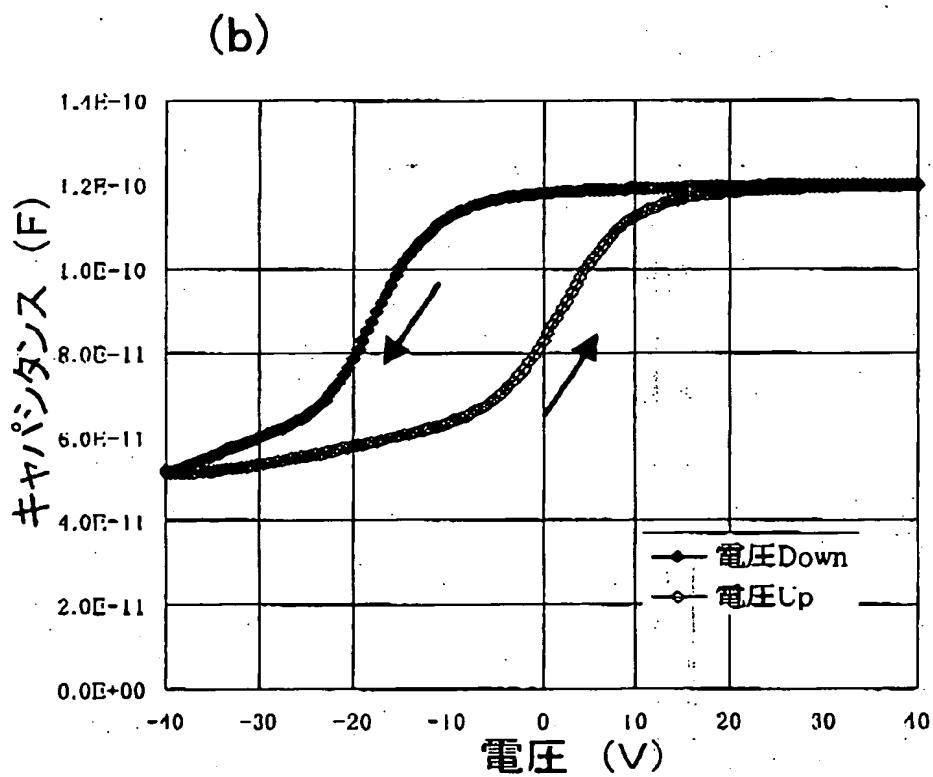
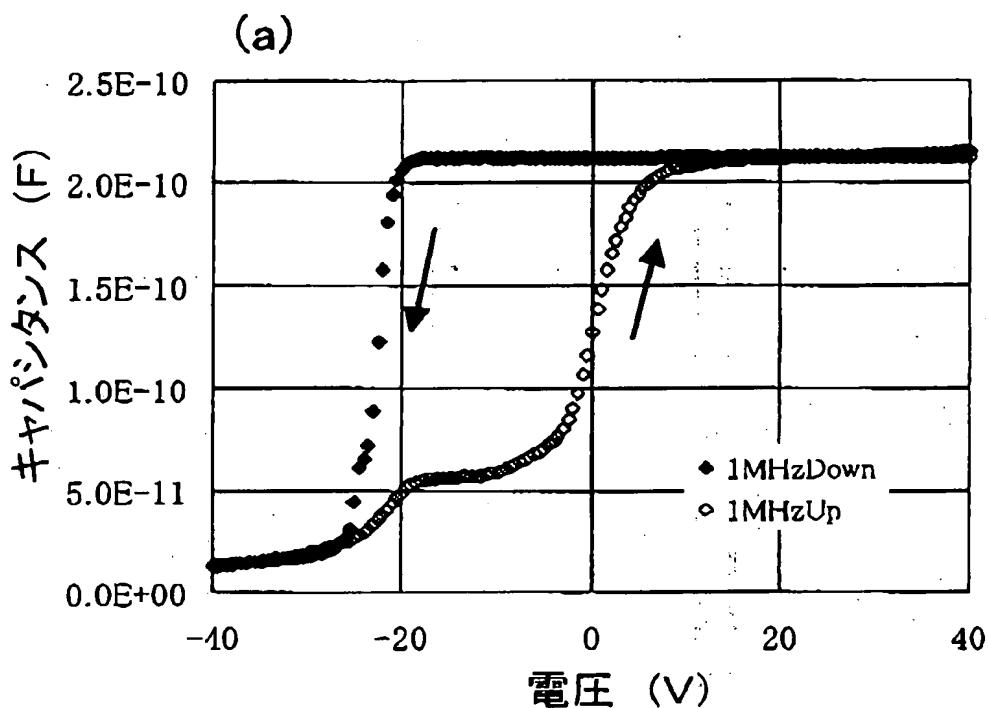


(b)



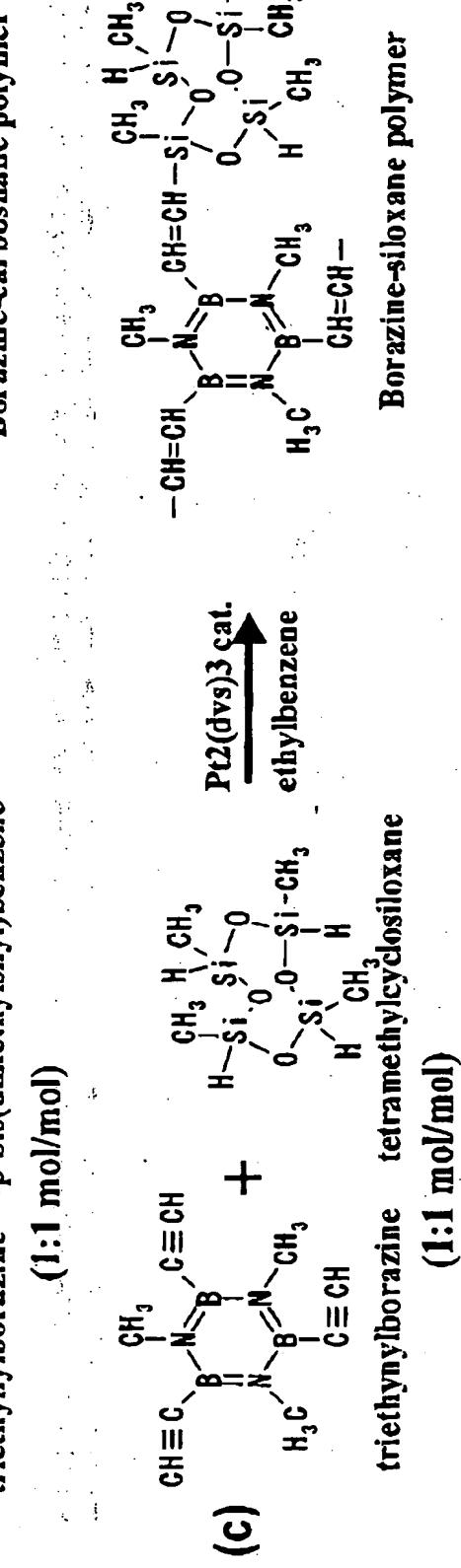
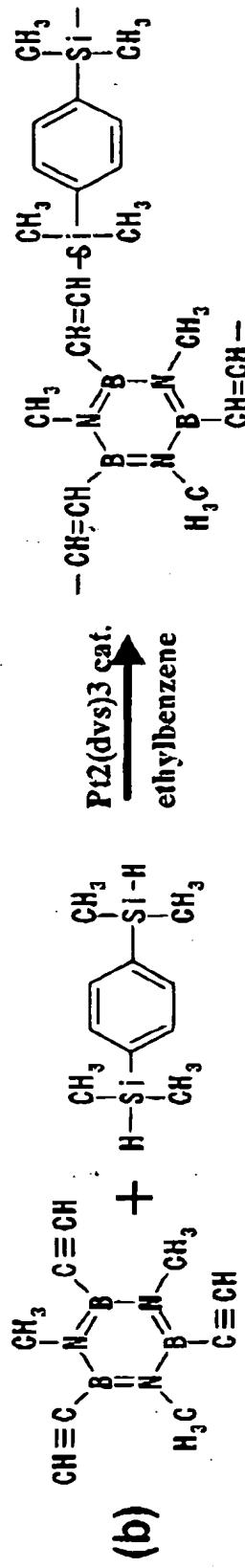
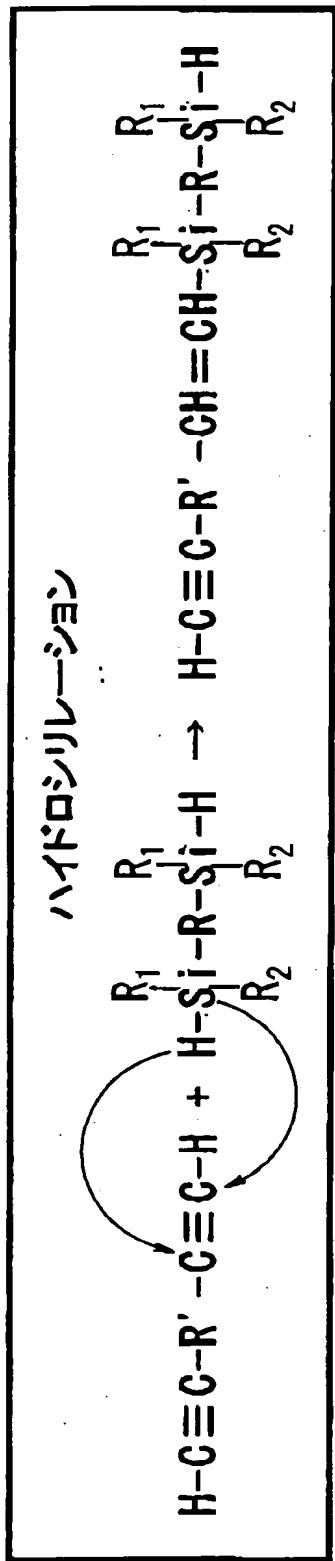
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FIG. 3



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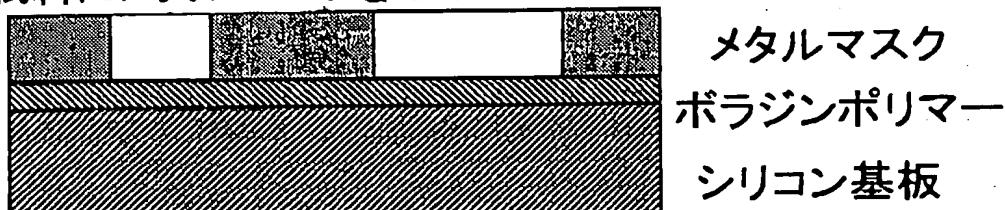
F - G . 4



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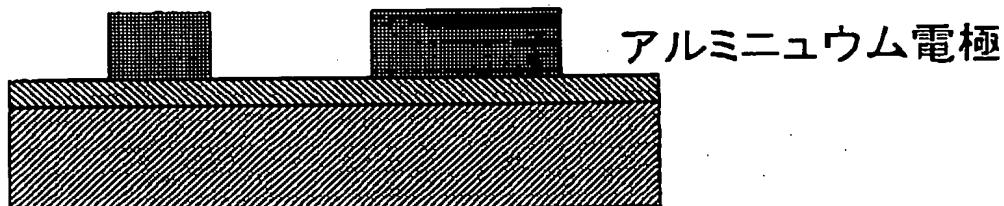
F I G. 5

試料にメタルマスクを取り付け

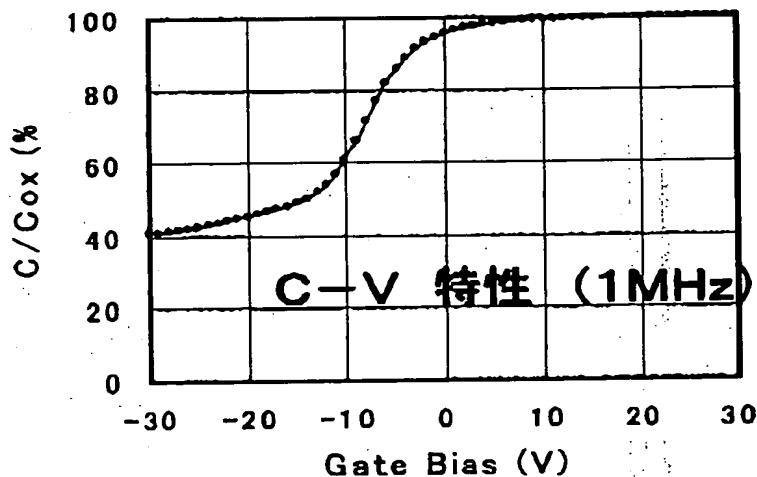


(a)

アルミニウム蒸着後メタルマスクを除去



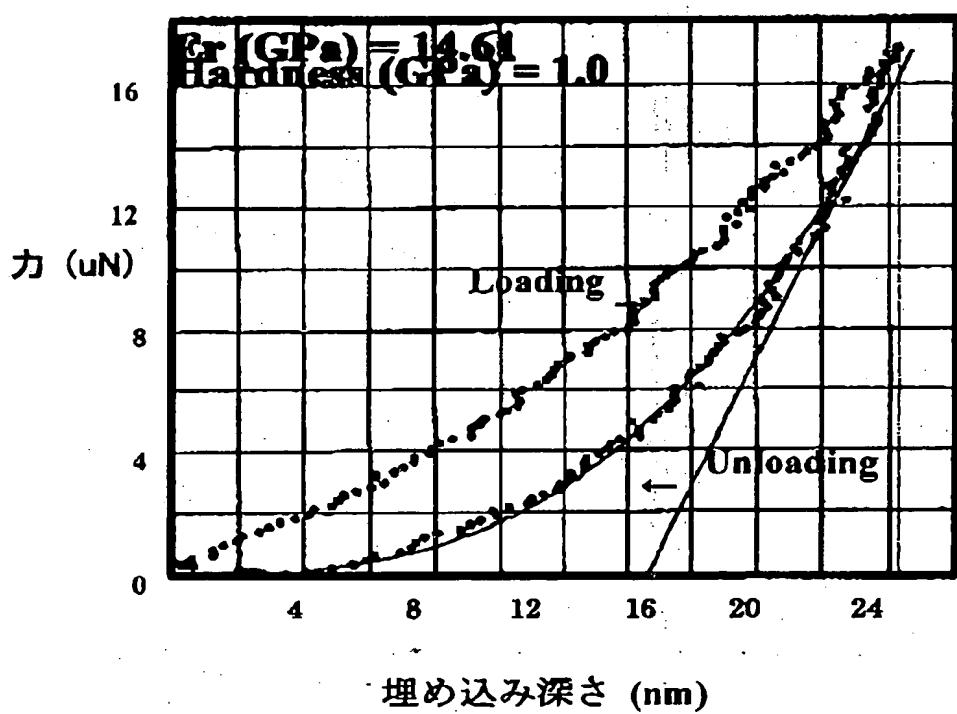
(b)



(c)

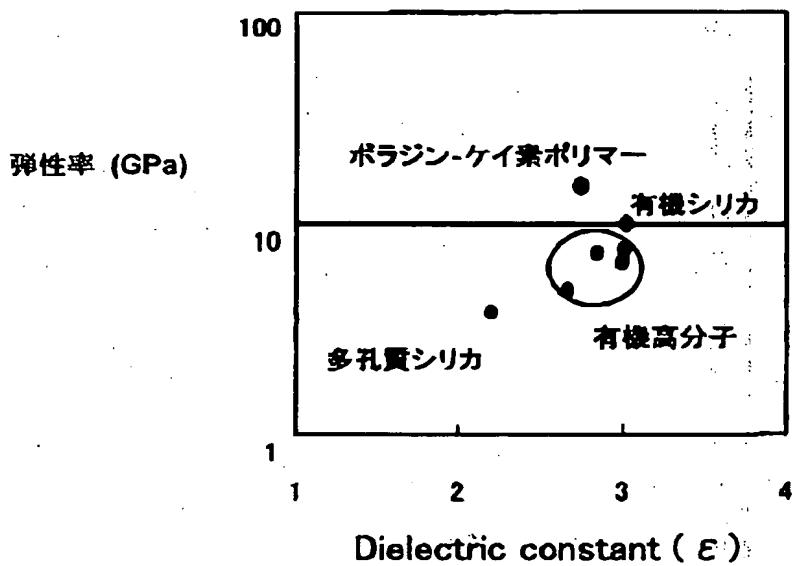
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F I G. 6

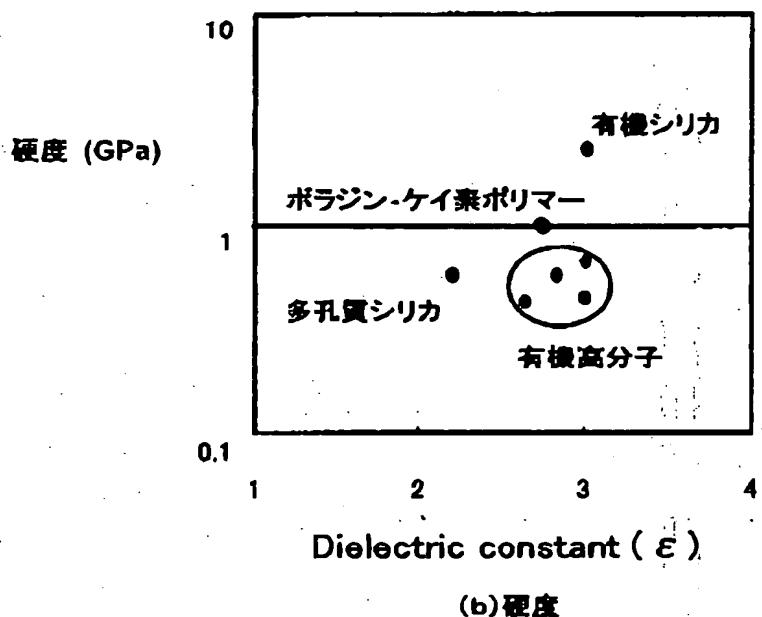


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F I G . 7



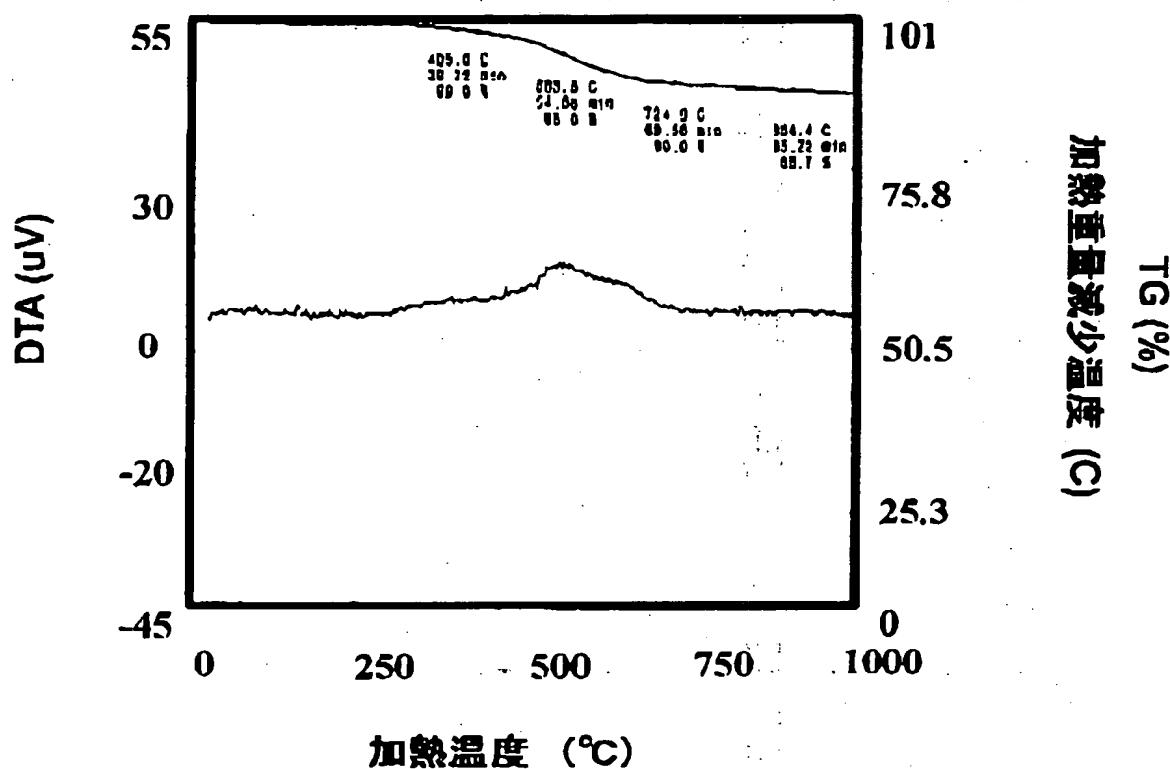
(a) 弹性率



(b) 硬度

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FIG. 8

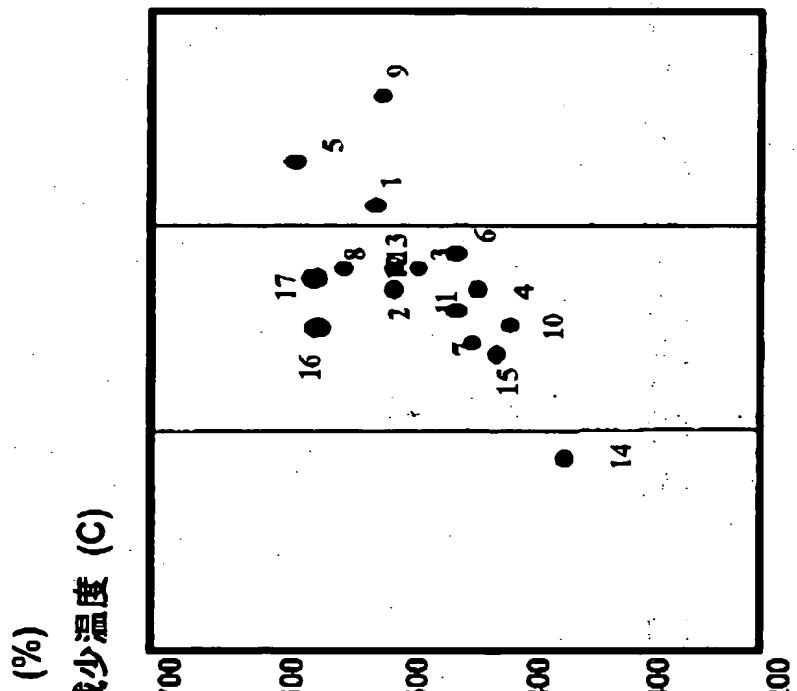


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F - G . 9

ポリイミド
ポリシロキサンブロックポリイミド

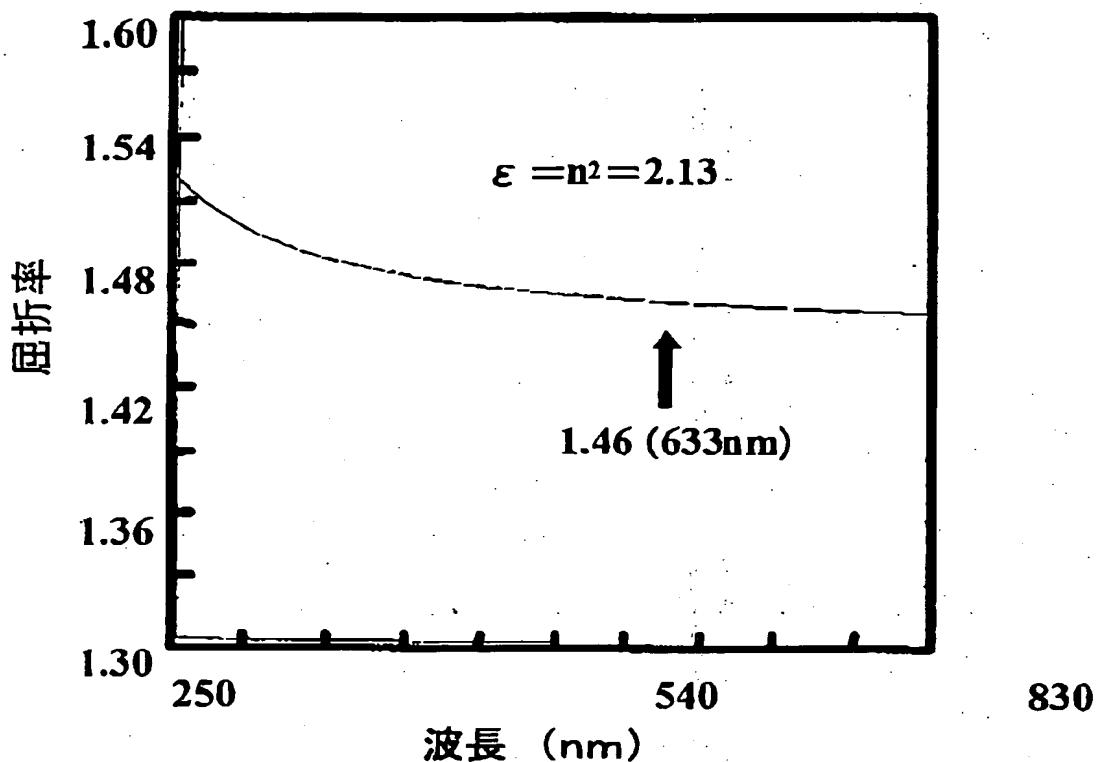
1. ポリシロキサン含有ポリイミド
2. シジアミノジアマンタン含有ポリイミド
3. ポリベンゾイミダゾール
4. フッ素化ポリイミドベンゾオキサゾール
5. アリル化ポリフェニレンエーテル
6. 全芳香族ポリエーテル
7. ポリエーテルスルホン
8. 非極性ポリオレフィン
9. ポリインダン
10. ポリキノリン
11. ポリフェニルキノキサリン
12. テフロンAF
13. 環状フッ素樹脂/シロキサン
14. ボラジンーシロキサン
15. ボラジンーカルボシラン



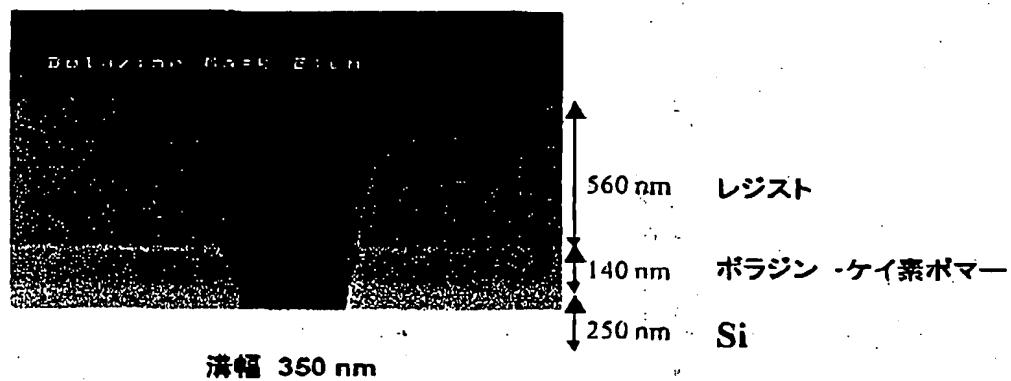
4
3
2
1
比誘電率

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F I G . 10



F I G . 11

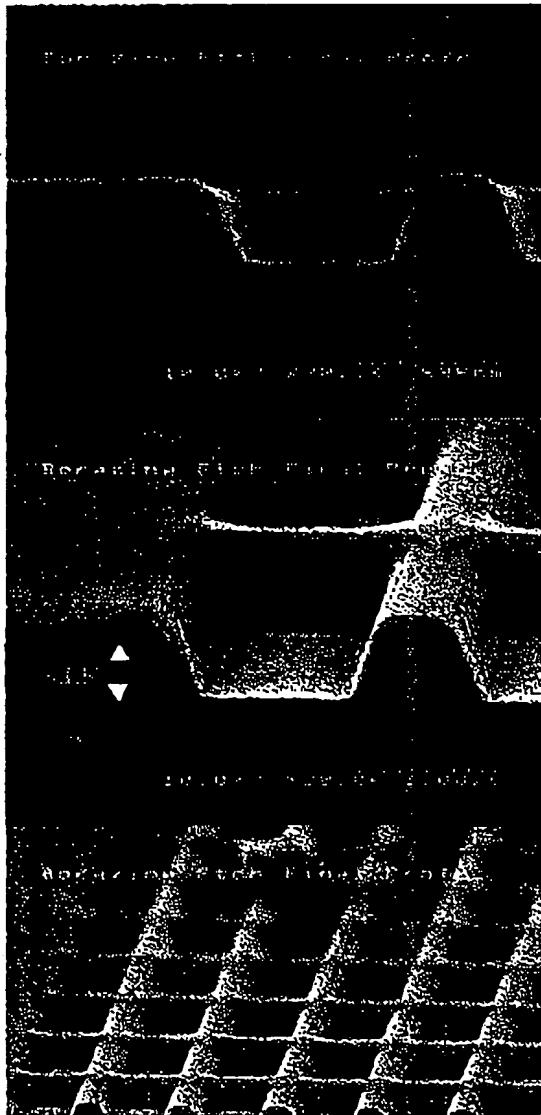


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FIG. 12



(a)



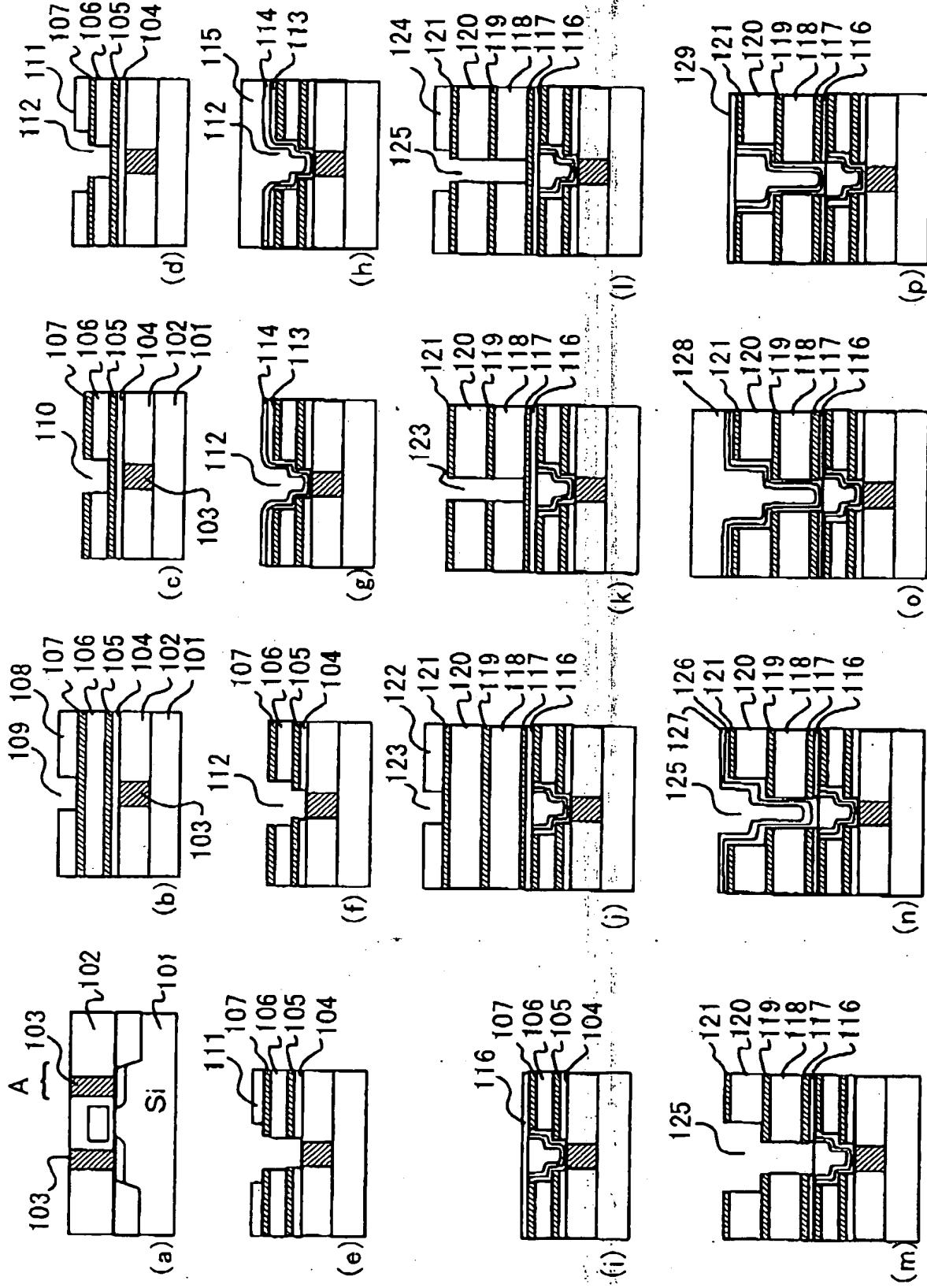
(b)

(c)

(d)

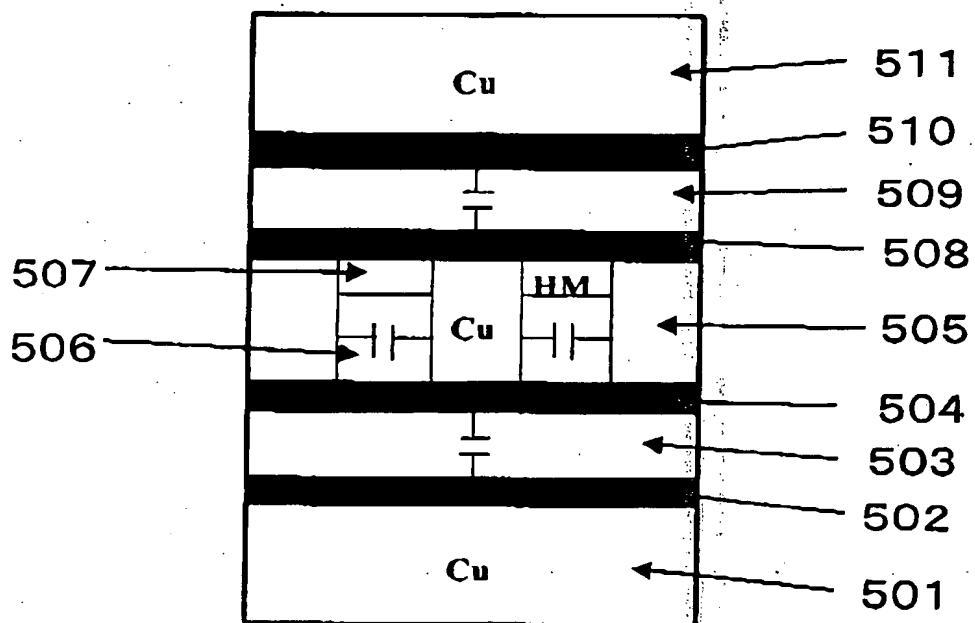
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F I G. 13



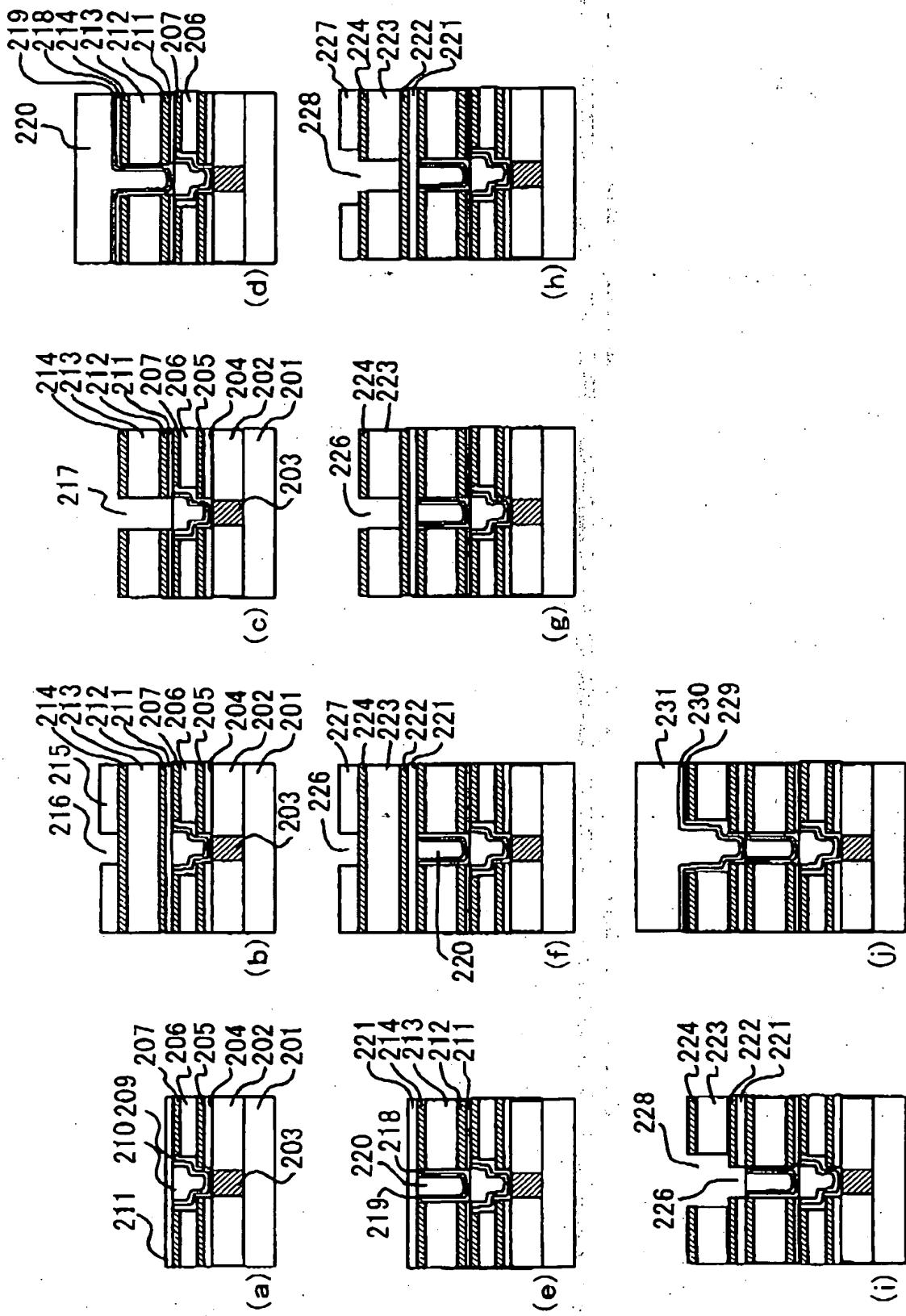
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FIG. 14



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F I G. 15



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F - G . 16

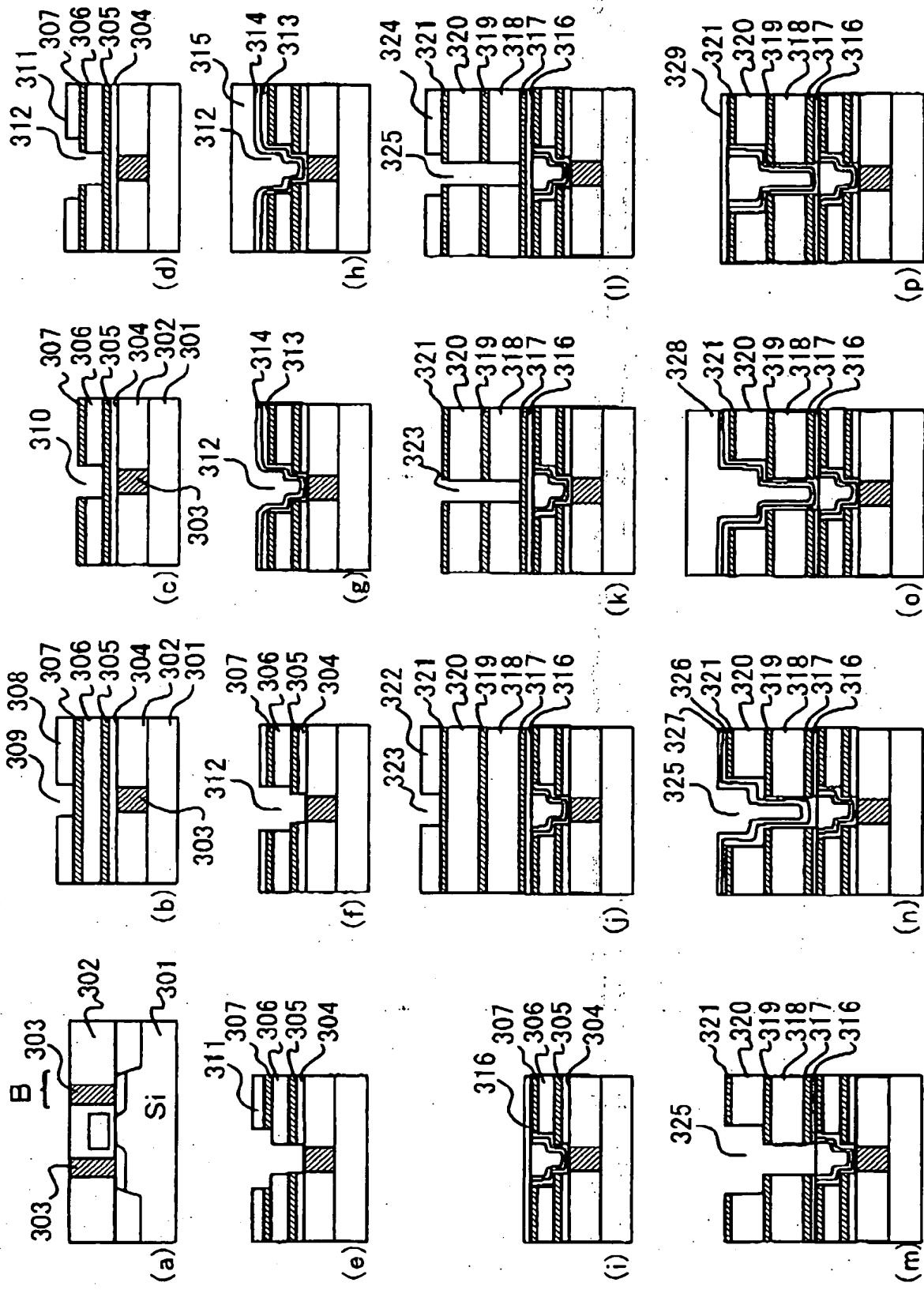
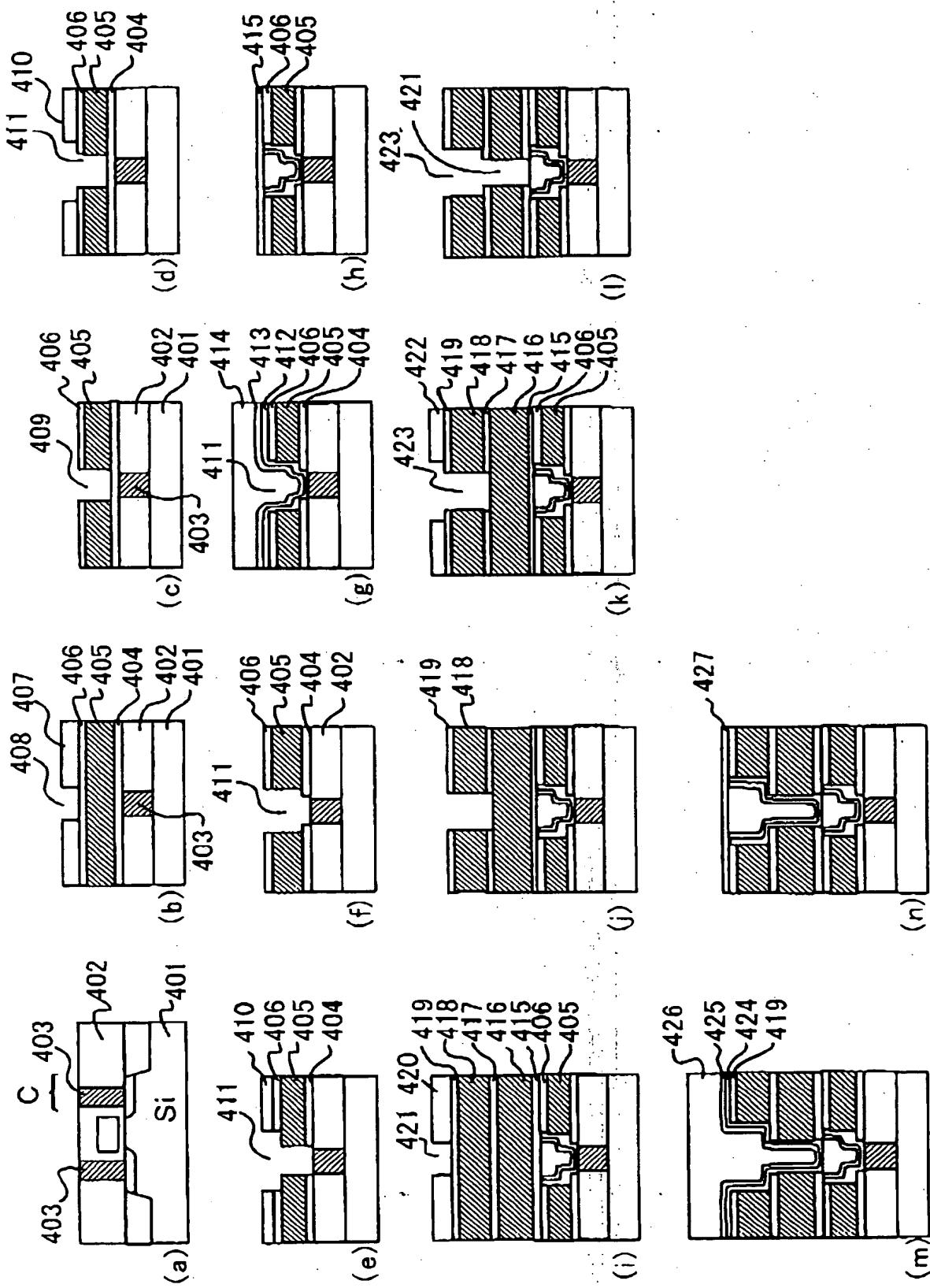
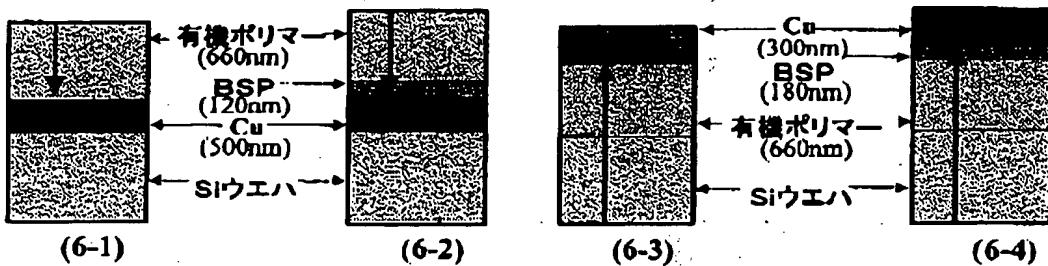


FIG. 17



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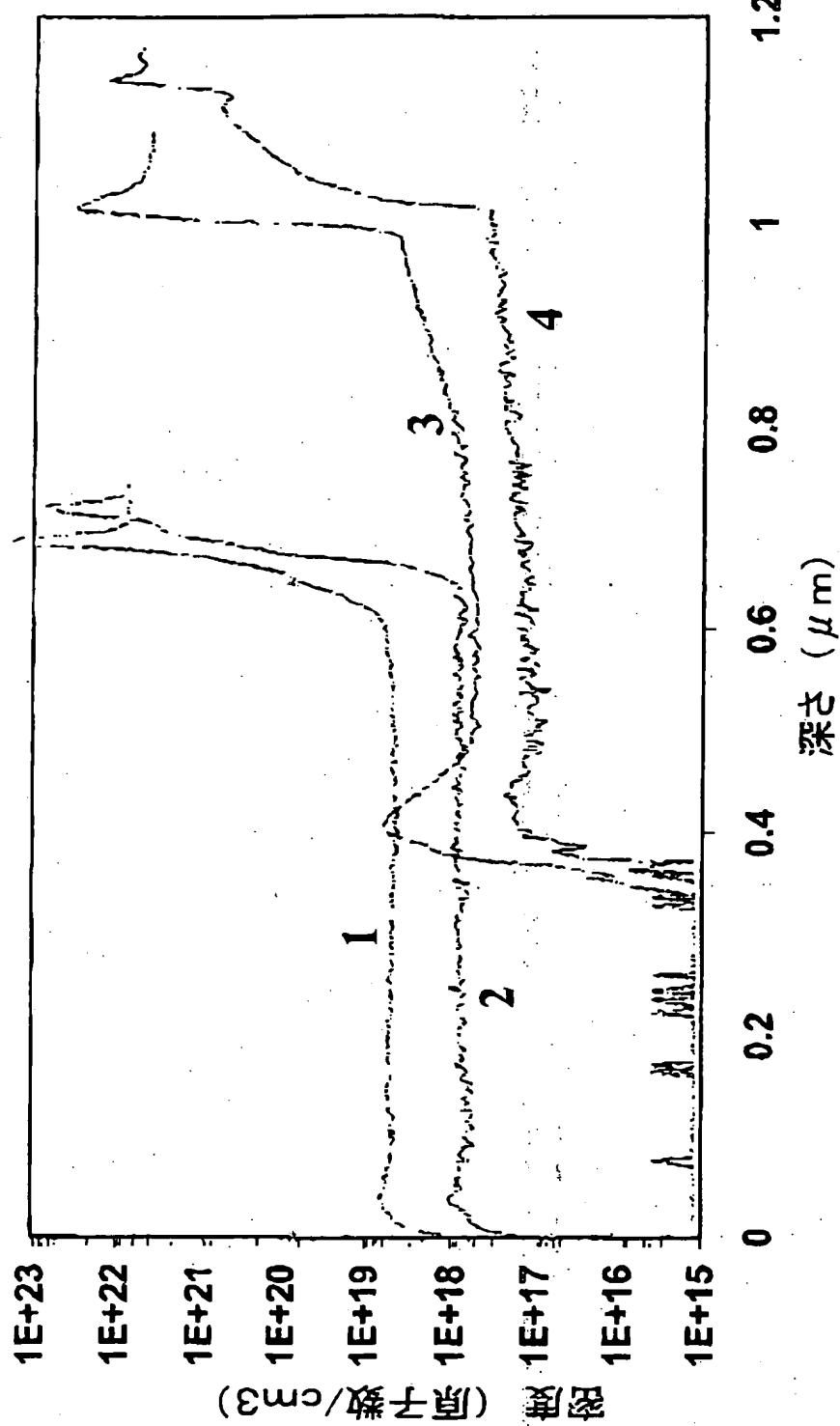
F I G. 18



	構造	Cu atoms/cm ³
1	Si / Cu(500nm) / OP(660nm)	5×10^{18}
2	Si / Cu(500nm) / BSP(120nm) / OP(660nm)	8×10^{17}
3	Si / OP(660nm) / Cu(300nm)	6×10^{17}
4	Si / OP(660nm) / BSP(180nm) / Cu(300nm)	1×10^{17}

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F I G . 19



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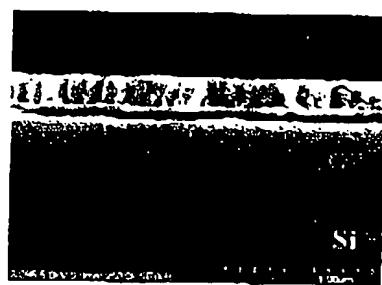
F I G. 20

(a)



アニール
400°C
6hrs

(b)



アニール
400°C
6hrs

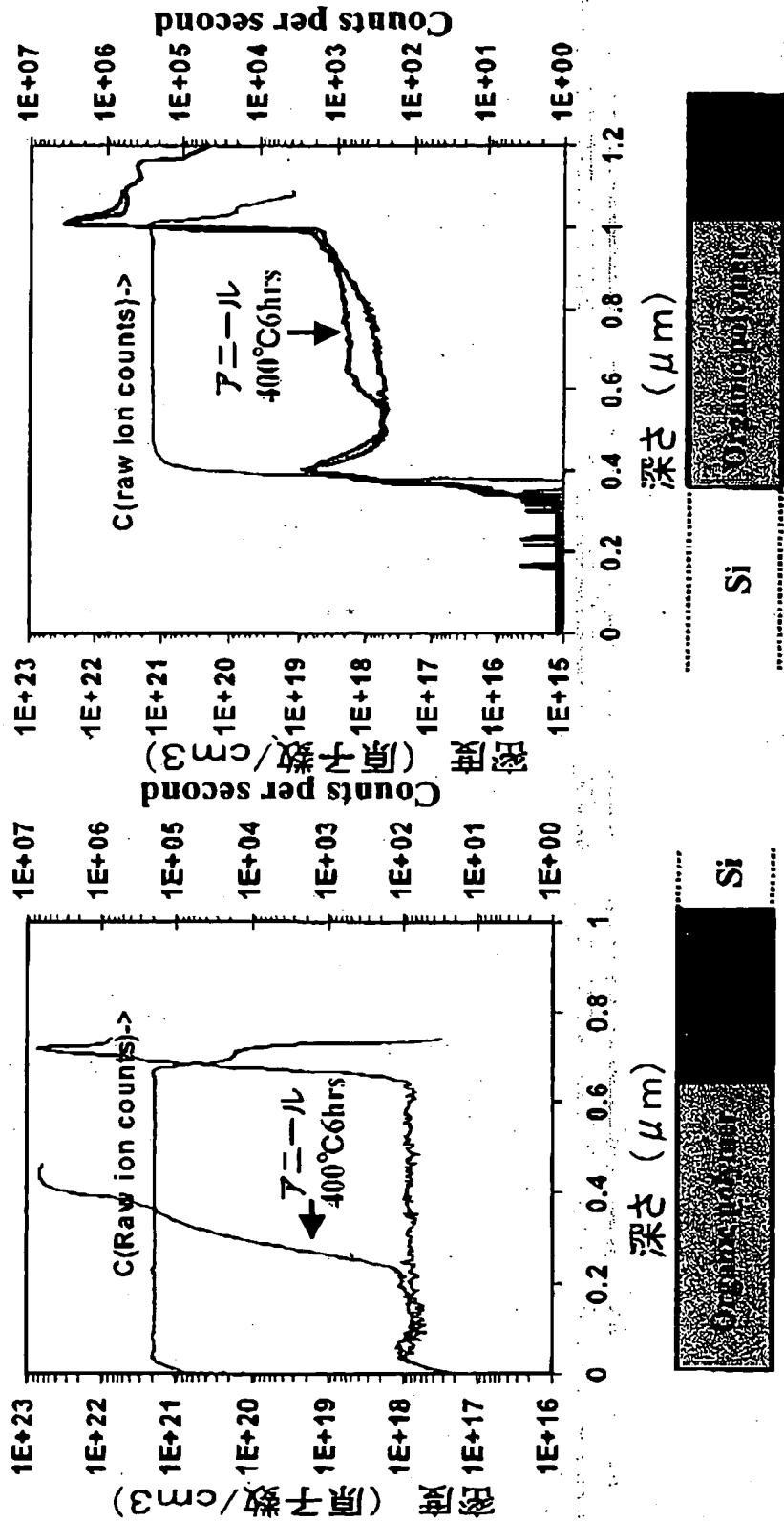


(c)

(d)

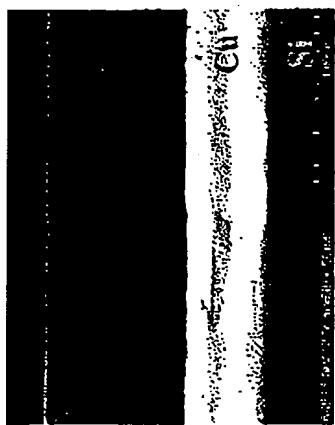
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F I G. 21



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F I G . 22

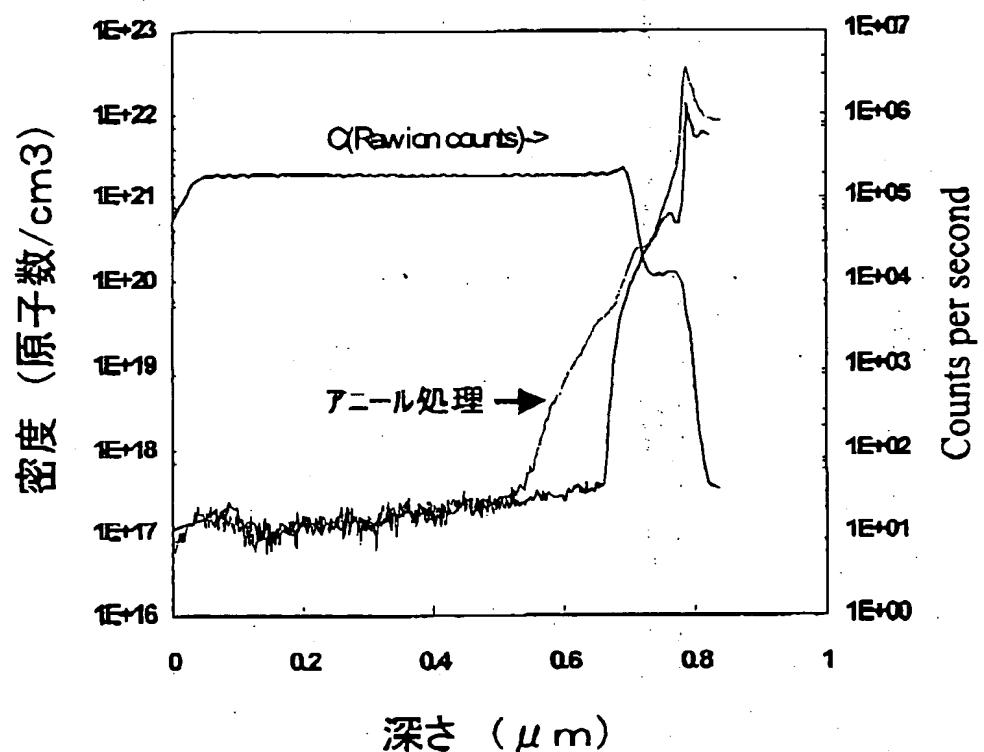


$\gamma = -\beta$
400°C-6hrs



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F I G . 23



Organic polymer

Si

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FIG. 24

